



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/606,968 | 06/27/2003 | Hiroto Nakatani | 01-439 | 4835 |

23400 7590 11/29/2004

POSZ & BETHARDS, PLC
11250 ROGER BACON DRIVE
SUITE 10
RESTON, VA 20190

EXAMINER

NATNITHITHADHA, NAVIN

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

3736

DATE MAILED: 11/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/606,968

Applicant(s)

NAKATANI ET AL.

Examiner

Navin Natnithithadha

Art Unit

3736

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 7-11, 17, 20 and 23-28 is/are rejected.
- 7) ☒ Claim(s) 4, 6, 12-16, 18, 19, 21 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>06272003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 8 is objected to because of the following informalities:

It is not clear as to how the sensor detecting means detects a sensor under the person. It appears this subject matter is in relation to a presenting a flag indicating the presence of the person on the bed as described in the specification on page 17, lines 2-11. The detecting means in the claim and the detecting means in the specification appear to be different because the claim describes detecting the sensor and the other describes detecting the person. An amendment is required to have the claim match the subject matter described in the specification. The Examiner has interpreted this claim to mean that the system of claim 1 comprises a detecting means that detects presence of the person on top of the sensors. Appropriate correction is required.

2. Claims 4 and 6 are objected to because of the following informalities:

The claims are replete with grammatical and idiomatic errors. The examiner suggests amending the claims to read - - wherein the sensor selecting means selects the sensors having an average of the signal levels in the respiration frequency band that are a predetermined times larger than the average of the signal levels in the frequency band higher than the respiration frequency band - -, which better define the disclosure on page 9, lines 8-17.

3. Claim 15 is objected to because of the following informalities:

In line 2, "determination means that" appears to be a typographical error and should be amended - - determination means that detects apnea or hypopnea when - -. This will also clarify that the subject matter in the claim is used to detect apnea or hypopnea. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 5, 7-11, 20, and 23-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoshimi et al, US 6,280,392 B1.

In regards to claim 1, Yoshimi teaches a respiratory monitoring system for a sleep apnea syndrome examination (see abstract and col. 1, lines 14-20), comprising: a plurality of sensors (pressure sensitive cells) 11 that produces weight signals (see col. 2, lines 40-44); a respiratory signal producing means (ECU) 44 that produces respiratory signals representing a variation in weight (see col. 3, lines 8-10); a sensor selecting means (ECU) 34 that selects sensors having output signals (step 32) higher than a predetermined level from all sensors (see col. 3, lines 32-39); a determination

means (ECU) 44 that detects apnea (see col. 4, lines 1-12); wherein the respiratory signal producing means 44 produces the respiratory signal based on the weight signals outputted from the sensors that are selected by the sensor selecting means 34 (see col. 3, lines 56-64); and the sensor selecting means 34 further selects the sensors having output signals related to a respiratory body movement of the person from the selected sensors based on a comparison signal levels between a respiration frequency band (power spectrum) corresponding to the respiratory body movement and another frequency band (see col. 3, lines 35-39).

As to claim 2, Yoshimi teaches the sensors 11 are placed on a bed 2 (see col. 2, line 23).

As to claims 3 and 5, Yoshimi teaches selecting sensors based on a comparison of respiratory signal level with a threshold level which can be above or below the respiratory level (see col. 4, lines 1-12).

As to claim 7, Yoshimi teaches selecting sensors of the same phase relation and removing opposite phase relation signals (bias component removing means) (see col. 3, lines 56-67, and col. 4, lines 12-26).

As to claims 8 and 23-25, Yoshimi teaches determining the posture of a person (see col. 4, lines 60-64) wherein the posture is determined based on a correlation function that matches a posture model (see col. 6, lines 10-16). One of the posture models is capable of representing the presence of a person on the bed.

As to claim 9, Yoshimi teaches producing a respiratory signal based on weight signals outputted from the sensors when the amplitude (magnitude) of the respiratory signal is lower than a threshold (see col. 4, lines 1-10).

As to claim 10, Yoshimi teaches a warning signal (alarm) (see col. 8, line 12).

As to claim 20, Yoshimi teaches detecting the sleeping posture (see col. 4, lines 59-64).

As to claims 26-28, Yoshimi teaches an ECU 34 including a microcomputer and a transmitter (see col. 2, lines 48-49). It is inherent that the computer would have a memory for storing data.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimi et al, US 6,280,392 B1, as applied to claim 11 above, and further in view of Brydon, US 6,547,743 B1.

As to claim 17, Yoshimi does not specifically teach calculating the number of times apnea or hypopnea is detected. However, it is well known in art to count the number of apnea events. For example, Brydon teaches assessing the effectiveness of

Art Unit: 3736

treatment by determining the number of apneas that occur using respiratory monitoring system (see col. 25, lines 23-27) similar to Yoshimi's system.

Allowable Subject Matter

6. Claims 4, 6, 12-16, 18, 19, 21, and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

As to claims 4 and 6, the prior art of record does not teach claims 3 and 5 including: selecting sensors having an average of the signal levels in the respiration frequency band is a predetermined times higher than that in the frequency band higher or lower than the respiration frequency band.

As to claims 12-14 and 16, the prior art of record does not teach claim 11 including: detecting apnea or hypopnea when the amplitude of the respiratory signal decrease, increase, and then decrease with time and a frequency of the respiratory signal increases as the amplitude of the respiratory signal increases.

As to claim 15, the prior art of record does not teach claim 11 including: the determination means detects apnea or hypopnea when the frequency of the frequency of the respiration signal varies from low to high when a period of the respiratory signal becomes 0/5 second shorter than the previous signal.

Art Unit: 3736

As to claims 18 and 19, the prior art of record does not teach claim 1 including distinguishing between the apnea and the hypopnea based on a phase differences in weight signals according to respiratory body movement in a chest area and an abdominal area.

As to claim 21, the prior art of record does not teach claim 20 including: calculating the number of times that the apnea or the hypopnea is detected for each sleeping posture determined by the sleeping posture determination means.

As to claim 22, the prior art of record does not teach claim 11 including: stopping the production of respiratory signals weight distribution is changing.

Conclusion

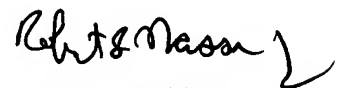
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Navin Natnithithadha whose telephone number is (571) 272-4732. The examiner can normally be reached on Monday-Friday, 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on (571) 272-4726. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Navin Natnithithadha
Patent Examiner
GAU 3736
November 22, 2004



ROBERT L. NASSER
PRIMARY EXAMINER